

REDUCING MARYLAND STATE GOVERNMENT'S ENVIRONMENTAL FOOTPRINT

**Annual Report
Calendar Year 2009**

Prepared for:
Governor's Delivery Unit

Prepared by:
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Executive Summary

At the direction of Governor Martin O'Malley, Maryland State Government undertook an effort in 2009 to calculate and then reduce the environmental footprint of state government.

Major achievements of the initiative in 2009 were:

- Developing a definition of state government agencies that would be included in the initiative – the Constitutional offices, Cabinet Departments, independent agencies, and state universities.
- Establishing a contact list for all agencies with both leadership and line manager responsibility for footprint goal data collection and reporting.
- Delivering a questionnaire to state agencies, with responses from 84 agencies related to environmental footprint reduction goals and issues.
- Conducting a University summit to share information on successes and challenges within public and private universities related to environmental footprint and greenhouse gas reductions.
- Developing an internal website to share information on the footprint reduction initiative.
- Developing reduction goals for reducing state government's environmental footprint.
- Implementing a timeline to develop a website and web-based tools to allow import of 2008 baseline data for state government by January 2010.

Recommendations for 2010 and beyond are:

- Follow through on review and editing of the data imported to the website
- Complete baseline calculations by April 2010 and make the website publicly available for review by citizens.
- Establish regular data entry frequencies for state agencies.
- Continue to focus on the reduction targets.
- Develop a sustainable solution to the system of utility bill import to Bith Energy.
- Find a solution to the lack of separate metering for many state offices. Perhaps combine with SmartGrid metering and the ability to leverage these types of abilities into future power purchase agreements.
- Initiate and/or continue training of employees and university students in conservation efforts and reduction goals.
- Once 2009 comparisons are possible to the baseline year, identify additional targets for footprint reductions.
- Consider adding additional footprint parameters in 2010 and beyond, including stormwater management, nitrogen sources, forest canopy cover, reduction of impervious surfaces and others.

TABLE OF CONTENTS

1.0	INTRODUCTION	4
2.0	ENVIRONMENTAL FOOTPRINT BASELINE DEVELOPMENT AND MONITORING.....	4
2.1	Problem Identification	4
2.2	Implementation Plan Development.....	5
2.3	Environmental Footprint Questionnaire	5
3.0	GOAL DEVELOPMENT	6
4.0	WEBSITE DEVELOPMENT.....	6
5.0	PROJECT MANAGEMENT/AGENCY COLLABORATION	6
6.0	RECOMMENDED NEXT STEPS	7

APPENDIX A: Maryland State Government Environmental Footprint Questionnaire

APPENDIX B: Success Stories from Questionnaire

APPENDIX C: Footprint Reduction Goals, June 10, 2009

1.0 INTRODUCTION

An effort to reduce the environmental footprint of state government in Maryland was undertaken by Governor Martin O'Malley to save money, reduce environmental impacts and to serve as an example to the citizens of the state. This effort is part of the *Smart, Green and Growing* initiative to strengthen the state's leadership role in fostering smarter, more sustainable growth and to inspire action among all Marylanders to achieve a more sustainable future.

This annual report includes information from January 2009 through December 2009. Maryland Environmental Service (MES) and the Department of Natural Resources prepared this annual report for submittal to the Governor's Delivery Unit to document the efforts in 2009, to report on accomplishments and to identify the next steps in achievement of the goal.

2.0 ENVIRONMENTAL FOOTPRINT BASELINE DEVELOPMENT AND MONITORING

2.1 Problem Identification

In January and February 2009, Maryland state agencies kicked off activities to achieve the Governor's directive to document and then reduce the energy, fuel and water consumption and waste production of all state agencies. Establishing a baseline would then allow calculation of a comprehensive environmental footprint. Once the baseline was established, reduction targets could then be set and achievement of reductions could be monitored.

The parameters of calculating a baseline and collecting the necessary data were discussed at a series of meetings in January and February. Some of the first steps to developing a baseline included developing a list of all state agencies and contacts, identifying the data sources that needed to be compiled, and having presentations from the agencies that have responsibilities for the various types of data.

It was determined that the calculation of the state's environmental footprint would cover all of the state agencies that report to Maryland State government – including the six Constitutional offices, Cabinet Departments, independent agencies, and state universities.

The agencies with legislative or constitutional responsibility for data related to this initiative were found to be:

- Vehicle Fuel – Department of Budget and Management
- Waste Generation and Recycling – Maryland Department of the Environment
- Utility Bills – Including electricity, fuel oil, propane, some water bills – Department of General Services

There were several technical issues that also needed to have solutions developed, including how to develop environmental footprint calculations and carbon equivalents. Other technical issues were how to deal with tenant/client situations for building occupancy, which activities were defined as part of state government and how to deal with lack of metering for energy and water consumption. A technical committee was established to meet separately and develop solutions to these questions and issues.

2.2 Implementation Plan Development

A multi-step process was identified in meetings with the Governor's Delivery Unit representatives and the Department of Natural Resources (DNR):

- 1) Collect energy, fuel, and waste data from state agencies and produce energy expenditure calculations using data available through Department of General Services (DGS), the Department of Budget and Management (DBM) and Maryland Department of the Environment (MDE).
- 2) Set a baseline for the state, with as complete a data set as possible entered for that year.
- 3) Compile the data and calculations, present the data, and analyze how and where energy savings can be achieved. Establish goals for reduction. State agencies will be directly tasked to provide the raw data to the above agencies; MDNR and the Maryland Environmental Service (MES) were assigned to be responsible for data management and presentation aspects of the project.
- 4) Promote the initiative and communicate success stories.
- 5) Publish the data and progress towards the goals on a publicly available web site that is updated regularly.

In order to meet the above steps in the plan, a timeline was developed to accomplish the identified steps. The timeline was revised once and is currently as follows:

- March 2009. Distribute a questionnaire to all state agencies to gather baseline information.
- July 2009 – continue process of collection and verification of detailed data from state agencies
- July 2009 – Establish an internal web site for state agencies to share information, see action items from meetings, check schedules and have access to technical articles related to the environmental footprint effort.
- January 2010 – establish a website that can import appropriate data from multiple sources, be QA/QC's by state agencies.
- April 2010 – Go 'live' with the website, with data accessible to the public on progress towards reducing state government's environmental footprint.

2.3 Environmental Footprint Questionnaire

An *Environmental Footprint Baseline Estimate Questionnaire* was developed and distributed to all state agencies. The survey was conducted through an online survey tool, with questions on energy use, mobile fuel, water consumption, waste generation and recycling. Some questions were administrative in nature to gather information on how bills were paid, if agencies paid for utilities separately, through another state agency or

through a lease arrangement. Questions were also included regarding actions taken to date to reduce energy consumption and other footprint parameters.

As of the last update on the survey on May 14, 84 agencies had responded to the survey or were covered under another survey response. A copy of the blank survey is included as Appendix A

3.0 GOAL DEVELOPMENT

With the survey results in, a plan for implementation and clear problem identification, work towards goal development proceeded. The first step to goal development was to research existing laws and executive orders. While some of these in-place requirements set various different compliance and baseline year dates, there were enough existing laws and orders to use so that all new goals did not need to be set.

The goals are provided as Appendix B. In these goals, the baseline year to start calculating reductions from was set at calendar year 2008. This is the first year that most state agencies would have complete data available. For those agencies with complete 2007 data, this can be used and reductions can be calculated starting from this year.

Goals were finalized and sent out to the state agencies in June 2009.

4.0 WEBSITE DEVELOPMENT

Website development was undertaken as a multi-step process. The first website was made available in July 2009 according to the original schedule, with a site available to post goals, meeting summaries, references, articles and meeting schedules for the various committees to use.

The second phase of the website development is a site which will receive data from DGS and individual state agencies on the footprint parameters. This data will be used to calculate each agency's baseline footprint for 2008. Then annual footprints will be calculated, with reductions calculated and compared to the original baseline. The scheduled dates for this website are that it will be running in January 2010, with beta testing between January and March. Then in April 2010, the website will be made publicly accessible to allow the citizens of the state to see the footprint reduction progress that each state agency is making.

5.0 PROJECT MANAGEMENT/AGENCY COLLABORATION

MES provided support for the meetings by developing presentations, coordinating agenda topics, scheduling team member and guest presentations, and developing meeting summaries. In preparation for the meetings, MES developed action item reviews, meeting agendas and summaries from past meetings, which were posted to the website available to all state agency members of the footprint reduction initiative. During CY 2009, the main committee met in January, February, March, April, May, July, September and

December 2009. Teleconferencing was offered for all meetings and was frequently utilized by committee members to allow participation without the commute to the meeting location.

DNR managed the Technical Committee, which was charged with developing answers to the technical questions involved in data acquisition, footprint and carbon equivalent calculations, etc.

SAIC assisted the Technical Committee, under a contract with DGS that provides for assistance with energy issues. DGS also provided information on the state waste collection and recycling contracts, the energy database being produced by their contractor Bith Industries, and leasing and utility payment questions. DGS also assisted with information transmittal to State Energy Coordinators.

MDE provided information and updates on water and waste recycling and reporting.

DBM provided information on state mobile fuel reporting and data.

MEA assisted with energy reduction information and EmPower Maryland implementation dates and information.

The state universities provided information on their own green campus initiatives and greenhouse gas and footprint calculations. The University of Maryland System also hosted a “University Summit” in May 2009 to share information across public and private universities in Maryland about successes and challenges in green initiatives and footprint reduction efforts.

6.0 RECOMMENDED NEXT STEPS

The initial baseline calculations using information already available will be produced in January 2010. State agencies are expected to review and edit the data as needed to make sure it is accurate and complete. After that goal, April 2010 is the date that the website with footprint data is planned to be publicly available.

Regular data entry frequencies will need to be established and ongoing data maintenance will be required by all state agencies. The year 2009 data will be the first year that comparisons to the baseline year of 2008 will be possible for most agencies. Continued focus on the reduction targets will need to be maintained.

The current system of data validation and submittal to Bith Energy for utility bills is somewhat time and labor intensive, especially for agencies and offices without access to higher technology laserfiche capability. Development of a sustainable solution to this issue has been recommended to the Executive Workgroup and finding a solution to this issue will be important to the continued success of the goal reduction target.

Many state agencies are not metered separately for their facilities. They lease from DGS, or others, or share space that is not metered separately. Many agencies also do not

directly pay their own power bills, so there is not a visible benefit to taking steps to achieve water and energy conservation. Metering is expensive, so a fund source would need to be identified if this is identified as a goal. This is a long term goal, but is possible with the expected advent of SmartGrid metering and the ability to leverage these types of abilities into future power purchase agreements.

The training component for state agency staff and university students is critical. We have heard from survey responses and at the University summit that training and education can make a huge difference in acceptance and cooperation with conservation efforts.

It has been suggested that finding a way to ‘incentivize’ the agencies or building staffs could also increase success of the efforts. One report from a facility at the University Summit was that when staff (at a separately funded unit) were allowed to share a percentage of the cost savings of conservation, it drastically increased the success of their conservation efforts. Or an agency could share part of the savings with an add-in to their budget that allowed them to use some of the savings for their own mission, vs. just DGS seeing the savings. But there would need to be separate metering to measure the savings.

Consider establishing a position or expanding the duties of an existing position at each agency to incorporate responsibility for tracking and reporting on these goals. That person should be reporting fairly high up in each organization so there is a direct line to the person who is responsible for their agencies’ compliance.

Reporting on these goals in “State Stat” will be important to keep the visibility and responsibility for goal achievement from being lost.

Once 2009 comparisons are possible to the baseline year, identify additional targets for footprint reductions.

Consider adding additional parameters in 2010 and beyond, including stormwater management, nitrogen sources, forest canopy cover, reduction of impervious surfaces and others.

APPENDIX A

Maryland State Government Environmental Footprint Questionnaire

Maryland State Government Environmental Footprint

Basic Information

PLEASE READ THESE INSTRUCTIONS BEFORE COMPLETING THIS SURVEY

This questionnaire has been developed to assist each agency in completing the first of eight interim milestones for the Governor's initiative to determine the environmental footprint for the State Government.

The intent of this current Task 1 effort is for agencies to identify actions that they are currently implementing, or will implement in the immediate future, to reduce their environmental footprint. Later this year, we will be working with all agencies to calculate their environmental footprint and subsequently set measurable goals for each category. Based on those goals, agencies may later need to revise their actions.

In order for the State Government to lead by example, agencies are expected to have begun, or to immediately begin implementing tangible reduction activities. Efforts to reduce each agencies environmental footprint should be tracked for future reporting.

Sources available to assist you in completing this survey include the Phase I Energy Plan per SB 267 submitted to MEA, Water Audits per Executive Order 01.01.2001.06 submitted to MDE, Annual Waste Diversion Reports submitted to MDE per the Maryland Recycling Act and energy audits that may have been conducted at your facilities.

This is also your opportunity to promote your agency's sustainability initiatives. Please provide as much information as you have available on projects you have completed or are currently in progress. We would be happy to accept supplemental information via email or in hard copy if an agency would like to provide it. Please send it via email, to mdfootprint@menv.com.

This questionnaire has been developed as a template only. Each agency must determine what level of detail is needed to cover all facilities, and list any additional information that has not been included. For example, a small agency, with only one (1) building may be able to complete one (1) survey for the entire agency, whereas large agencies may need to complete multiple surveys for each type of facility - i.e., office buildings, maintenance buildings, parks, etc. If multiple surveys are completed for an Agency, the "Agency" field on the first page of the survey must be exactly the same for all Sub-Agency submissions. The amount of time it will take to complete this survey will vary for each agency. Variables that will affect the time needed to complete the survey(s) include the size of the agency, the number of surveys needed to cover the entire agency, the amount and location of the information requested, etc. Much of this information may exist in previously completed reporting requirements. This questionnaire has been divided into the six (6) categories that will be used to assess previous steps taken to define an agency's environmental footprint.

Agency energy coordinators or agency environmental coordinators should complete and submit the survey to MES by close of business March 31, 2009.

If you have any questions please send them to mdfootprint@menv.com or call:

David Ferguson
(410) 729-8305
(410) 729-8340 fax

Carl LaVerghetta
(410) 729-8261

Rebecca Sprouse
(410) 729-8391

This survey must be completed in the same session in which it was started. If you close the browser window or navigate to a different website, you cannot come back and finish the survey. If this happens, please redo the entire survey, and notify us that there is an incomplete survey in our records.

There is no easy way to reproduce the completed survey--yet, so if a copy is desired, the survey will need to be printed off page by page as it is completed before the "Done" button is entered.

If you would like a copy of the survey to use as an aide before you fill it out online, please use the following link:
<http://www.mesgis.com/documents/EnvFootPrintSurvey.pdf>

If for any reason you need to alter a response to this survey after submittal, please send us the information to one of the contacts listed above.

Thank you for your participation in this survey. We look forward to continuing to work with you on this initiative.

Maryland State Government Environmental Footprint

* Please identify yourself.

Agency:	<input type="text"/>
Agency Sub Unit:	<input type="text"/>
Address:	<input type="text"/>
Name/Title:	<input type="text"/>
Contact Information:	<input type="text"/>
Phone:	<input type="text"/>
Email:	<input type="text"/>

* Indicate the facilities to be covered in this questionnaire, including building square footage:

Maryland State Government Environmental Footprint

Building Energy and Fuel Use

* Do you pay your own energy (gas/electric) utility bills?

☐ YES

☐ NO

* Are your energy utilities part of your rent/lease agreement?

☐ YES

☐ NO

What percentage of your rent? If unknown, type 'Unknown'.

* Does another state agency pay your gas/electric utilities?

☐ YES

☐ NO

What agency?

* Does a non-state entity pay your energy utility bills?

☐ YES

☐ NO

What entity?

* Do you pay for gas/electric utilities used by any non-state tenants residing on your property?

☐ YES

☐ NO

Please list any tenants this applies to:

Maryland State Government Environmental Footprint

* Please answer the following questions for your agency/facility:

	COMPLETE	IN PROGRESS	PLANNED	N/A
Have you submitted your Phase I Energy Plan?	€	€	€	€
Have you set energy reduction goals?	€	€	€	€
Have a policy to turn off lights/computers at nights and weekends?	€	€	€	€
Have timers installed on light switches to automatically turn off the lights in unoccupied areas?	€	€	€	€
Water heater set between 105 and 115 degrees?	€	€	€	€
Heating/cooling system adjusted for unoccupied areas and periods?	€	€	€	€
Replaced worn or broken weather-stripping and caulking?	€	€	€	€
Installed additional insulation/replaced damaged insulation?	€	€	€	€
Boiler maintenance and combustion efficiency is tested on the manufacturer's recommended schedule?	€	€	€	€
Condensers and cooling towers are maintained on the manufacturer's recommended schedule?	€	€	€	€
Air filters and heating/cooling coils are maintained on the manufacturer's recommended schedule?	€	€	€	€
Include energy usage estimates in design documents for large scale rehabilitation projects or new construction projects?	€	€	€	€
Require the use of energy conservation or renewable energy elements in rehabilitation or new construction projects?	€	€	€	€

* Provided training for employees on energy conservation?

☐ COMPLETED

☐ IN PROGRESS

☐ PLANNED

☐ N/A

Please provide additional information on the training provided - for example, was the training developed and conducted in-house or was it contracted? How long (# of hours) was the training class? Is training documentation available? If so, please provide a copy.

* Do you anticipate meeting your 2009 energy reduction goals?

☐ YES

☐ NO

☐ N/A

* Do you anticipate meeting your 2010 energy reduction goals?


☐ YES

☐ NO

☐ N/A

Maryland State Government Environmental Footprint

* Have you had an energy audit at your facility?

 COMPLETED

 IN PROGRESS

 PLANNED

 N/A

If YES, enter the date the audit was conducted:

If YES, enter any improvements/upgrades made as a result of the audit:

* Uses alternative energy sources (solar, wind, biomass, etc.)?

 COMPLETED

 IN PROGRESS

 PLANNED

 N/A

If YES, list sources and dates installed:

* Replaced incandescent bulbs with flurescent bulbs or LEDs?

 COMPLETED

 IN PROGRESS

 PLANNED

 N/A

% Replaced:

* Installed Energy Star Appliances?

 COMPLETED

 IN PROGRESS

 PLANNED

 N/A

% Replaced:

Please list any additional actions your agency has taken to reduce energy use:

Maryland State Government Environmental Footprint

Mobile Fuel

* Please answer the following questions for your agency/facility:

	COMPLETE	IN PROGRESS	PLANNED	N/A
Performs manufacturer recommended maintenance such as replacing air filters, and keeping tires properly inflated and aligned?	€	€	€	€
Increased teleconferences to reduce driving?	€	€	€	€
Allows telecommuting and flexible schedules to reduce driving?	€	€	€	€
Coordinates and encourages employee car-pooling?	€	€	€	€
Captures commuting habits on timesheets?	€	€	€	€

* Provided training for employees on fuel conservation?

☐ COMPLETED

☐ IN PROGRESS

☐ PLANNED

☐ N/A

Please provide additional information on the training provided - for example, was the training developed and conducted in-house or was it contracted? How long (# of hours) was the training class? Is training documentation available? If so, please provide a copy.

* Has hybrid or alternative fuel vehicles?

☐ COMPLETED

☐ IN PROGRESS

☐ PLANNED

☐ N/A

If YES, list types:

* Uses the State Fuel Dispensing System?

☐ YES

☐ NO

* Uses personal vehicles for State business?

☐ YES

☐ NO

% of Use:

* Please estimate the miles driven by employees for commuting to and from work on an annual basis in State vehicles. # of miles:

* Estimated number of employees in State vehicles:

Maryland State Government Environmental Footprint

- * Please estimate the miles driven by employees for commuting to and from work on an annual basis in personal vehicles. # of miles:

- * Estimated number of employees in personal vehicles:

Please list any additional actions your agency has taken to reduce fuel use:

Maryland State Government Environmental Footprint

Water

* Do you pay your own water utility bills?

☐ YES

☐ NO

* Are water utilities part of your rent/lease agreement?

☐ YES

☐ NO

What percentage of your rent? If unknown, type 'Unknown'.

* Does another state agency pay your water utilities?

☐ YES

☐ NO

What agency?

* Does a non-state entity pay your water utility bills?

☐ YES

☐ NO

What entity?

* Do you pay for water utilities used by any non-state tenants residing on your property?

☐ YES

☐ NO

Please list any tenants this applies to:

* On public water?

☐ YES

☐ NO

Estimated gallons used per year (in millions of gallons):

Maryland State Government Environmental Footprint

* On well water?

☐ YES

☐ NO

Estimated gallons used per year (in millions of gallons):

* Please answer the following questions for your agency/facility:

	COMPLETE	IN PROGRESS	PLANNED	N/A
Conducted a Water Audit in compliance with Executive Order 01.01.2001.06?	€	€	€	€
Submitted a Water Conservation Plan in compliance with Executive Order 01.01.2001.06?	€	€	€	€
Has an inspection program in place to check for leaks?	€	€	€	€
Replaced faucets with low-flow (1.5 gallons/minute) models?	€	€	€	€
Installed composting toilets?	€	€	€	€
Installed faucet aerators?	€	€	€	€
Replaced shower heads with low-flow models?	€	€	€	€
Replaced toilets with low volume (1.6 gallons/flush) models?	€	€	€	€
Replaced appliances with ones with WaterSense Labels?	€	€	€	€
Converted once-through cooling systems to recycle water?	€	€	€	€
Adjusted industrial process to minimize water use?	€	€	€	€
Evaluated cleaning processes to minimize water use?	€	€	€	€
Perform vehicle and window washing on an "as needed" basis instead of regular scheduled basis?	€	€	€	€
Has policy to irrigate during the coolest part of the day (morning/evening)?	€	€	€	€
Installed low volume irrigation systems (drip systems)?	€	€	€	€
Minimized water use in outdoor fountains or other water features?	€	€	€	€
Plant native species that require less watering?	€	€	€	€

* Provided training for employees on water conservation?

☐ COMPLETED

☐ IN PROGRESS

☐ PLANNED

☐ N/A

Please provide additional information on the training provided - for example, was the training developed and conducted in-house or was it contracted? How long (# of hours) was the training class? Is training documentation available? If so, please provide a copy.

* Are you on track to meet your 10% water reduction goals by 2010?

☐ YES

☐ NO

Maryland State Government Environmental Footprint

Please list any additional actions your agency has taken to reduce water use:

Maryland State Government Environmental Footprint

Waste

* Do you pay your own waste disposal bills?

☐ YES

☐ NO

* Is waste disposal part of your rent/lease agreement?

☐ YES

☐ NO

What percentage of your rent? If unknown, type 'Unknown'.

* Does another state agency pay for your waste disposal?

☐ YES

☐ NO

What agency?

* Does a non-state entity pay for your waste disposal?

☐ YES

☐ NO

What entity?

* Do you pay for waste disposal used by any non-state tenants residing on your property?

☐ YES

☐ NO

Please list any tenants this applies to:

* Please answer the following questions for your agency/facility:

	COMPLETE	IN PROGRESS	PLANNED	N/A
Does your facility have a recycling program?	€	€	€	€
Does your facility have a policy to purchase recycled products?	€	€	€	€

Maryland State Government Environmental Footprint

* Provided training for employees on waste reduction?

 COMPLETED

 IN PROGRESS

 PLANNED

 N/A

Please provide additional information on the training provided - for example, was the training developed and conducted in-house or was it contracted? How long (# of hours) was the training class? Is training documentation available? If so, please provide a copy.

* Has your facility had a waste generation survey to identify areas where waste can be reduced, and recycling can be increased?

 COMPLETED

 IN PROGRESS

 PLANNED

 N/A

If YES, enter the date the survey was completed:

If YES, list any programs implemented as a result of this survey:

* Does your facility quantify its waste on a monthly/yearly basis?

 COMPLETED

 IN PROGRESS

 PLANNED

 N/A

If YES, yearly total (in Tons):

* Maintain a Chemical Inventory List?

 YES

 NO

Please list any additional actions your agency has taken to reduce waste:

Maryland State Government Environmental Footprint

Carbon Footprint

* Have you quantified your carbon footprint?

☐ YES

☐ NO

If YES, please list the methodology used to determine your carbon footprint, for example, on-line websites such as carbonfootprint.com, safeclimate.net, or through an accounting program such as the General Reporting Protocol for the Climate Registry.

* Have you quantified your environmental footprint?

☐ YES

☐ NO

* Have you quantified environmental footprint reduction based on existing infrastructure?

☐ YES

☐ NO

If YES, how much?

* Have you estimated environmental footprint reductions based on anticipated improvements?

☐ YES

☐ NO

If YES, how much?

Maryland State Government Environmental Footprint

Potential Others:

* Has your facility quantified its stormwater discharge?

☐ YES

☐ NO

If YES, enter quantity (in millions of gallons/year):

* Is stormwater discharge regulated under a discharge permit?

☐ YES

☐ NO

* Please answer the following questions for your agency/facility:

	COMPLETE	IN PROGRESS	PLANNED	N/A
Initiated BMP's for stormwater runoff?	€	€	€	€
Installed bioretention stormwater structures to improve stormwater management?	€	€	€	€
Installed innovative or non-structural stormwater management features?	€	€	€	€

* Installed a green roof?

☐ YES

☐ NO

If so, when was the green roof implemented?

* Allow nitrogen discharge via farm runoff, wastewater plant discharges, septic tanks, etc.

☐ YES

☐ NO

* Produce air emissions?

☐ YES

☐ NO

If YES, what emissions?

Maryland State Government Environmental Footprint

If YES, have permits for air emissions?

☐ YES

☐ NO

☐ N/A

Please select any of the following types of waste that are generated by your facility. Quantities may be requested at a later date.

☐ hazardous waste

☐ heavy metal waste

☐ petroleum waste

☐ voc/svoc waste

☐ asbestos waste

☐ PCB waste

☐ lead paint waste

Other:

Maryland State Government Environmental Footprint

Restatement of Survey Information

Thank you for your assistance.

We are requesting that you return all surveys to MES by March 31, 2009 in order to meet the deadlines to the Governor on this initiative.

As noted in the first page of the survey, this survey must be completed in the same session in which it was started. If you close the browser window or navigate to a different website, you cannot come back and finish the survey. If this happens, please redo the entire survey, and notify us that there is an incomplete survey in our records.

If you wish to keep a record of your responses to this survey you will need to print out each page of the survey after you fill it out using your web browser's print functionality.

If for any reason you need to alter a response to this survey after submittal, please send the information to mdfootprint@menv.com.

The following contacts are provided for help or additional information:

David Ferguson

410-729-8305

410-729-8340 fax

Carl LaVerghetta

410-729-8261

Rebecca Sprouse

410-729-8391

Other comments:

APPENDIX B

Success Stories from Questionnaire

University Success Stories from the Environmental Footprint Survey:

UMBC

- Purchase REC's, and receive 19.5% of their energy from renewable resources
- Plan to install Solar PV and passive solar hot water heater
- Calculated carbon footprint
- Have performed numerous upgrades
- Currently working with NORESKO's on additional upgrades.

Frostburg University

- Have a 2,000 watt solar system on one building
- Switched all lighting to T-5 which has reduced energy bills
- In the process of designing an alternate energy source building
- Installing energy management system on all HVAC systems
- Turned down all hot water heaters in dorms
- Athletic fields irrigated with pond water, not municipal
- Hold Earth day activities as well as have campus blackout days
- Calculated carbon footprint

University of Baltimore

- Solar Panel Project planned for November 2009
- UB has hired Energy Systems Group to perform a campus-wide guaranteed energy performance contract that will result in a 30% reduction in energy consumption- saving over \$11 million over 14 years that we be used to amortize \$8.1 million of systems upgrades. Thirty energy conservation measures will include new boilers, chillers, lighting, photovoltaic panels, a green roof, and water conservations measures.
- Quantified carbon footprint

Salisbury University

- High efficiency lighting and low-flow domestic water equipment campus- wide
- Eliminated domestic water usage for cooling in University Center refrigerators
- Chiller upgrades in 5 buildings and PTAC conversion in 2 buildings
- Installed enthalpy economizer and duct sealing in library
- Converted CAV to VAV in Holloway and demand control ventilation in 2 buildings
- Variable frequency drives in 5 buildings and energy efficient motors installed in 12 buildings
- Boiler efficiency improvements in all buildings and Energystar appliances in residence halls.
- Window replacements in 9 buildings, roof insulation in library and police building; boiler replacements in 6 buildings, pipe insulation replacements, Energystar appliances, personnel schedule adjustments to reduce building occupancy.
- 75% of new vehicles purchased are flex fuel vehicles based on yearly purchase number.
- Use electric vehicles for campus travel
- Quantified yearly waste and carbon footprint

University Maryland University College

- New boiler system installation; installed new air handling units throughout ICC; installed new energy management systems, retrofit lighting systems in all buildings
- LEED certified hotel addition; new green roof on ICC; replace equipment with energy star products when available
- In process of rideshare program. Have contract for transit shuttle service.
- Composting; available recycle containers throughout each facility
- Quantified carbon footprint

St. Mary's College

- Geothermal System
- 3KW solar system
- Lighting upgrades and occupancy sensors, day lighting, EMS upgrades, boiler replacement, boiler combustion controllers, domestic hot water pipe insulation, high efficiency motors, fume hood conversion, weatherization, vending machines controllers, O&M measures, photovoltaic array, programmable thermostats
- Recently finished Goodpaster Hall includes waterless urinals and a grey water system for flushing toilets. Some irrigation water is pumped from the stormwater retention pond.
- Grass clippings and leaves are composted. The cafeteria does not provide trays anymore, which reduce food waste by 25% approx. Composting bins are made available to the college community throughout campus. Old furniture is being re-used, recycled or donated.

UM – College Park

- Calculated carbon footprint
- Composts
- Installed Green Roof

Towson

- Enforcing tighter building temperature and humidity settings during occupied and unoccupied hours.
- Requiring all new building designs be LEED Silver or better.
- Expanding campus utility metering.
- Evaluating new campus lighting technologies.
- Reducing Power Plant steam pressures.
- Retrofitting water saving plumbing fixtures into existing campus buildings and specifying water saving plumbing fixtures in all new campus construction.
- Green roof installed 12/31/08
- Have quantified carbon and environmental footprint
- Purchased 7 electric vehicles for on-campus travel and purchased 36 flex-fuel vehicles.
- Plan to install alternative energy source (solar, wind, biomass, etc.)

State Agencies

BWI Airport:

- Replaced 95% of light bulbs.
- BWI Includes a 5% renewable energy requirement in energy purchases
- Energy Performance Contracting. All new appliance purchases meet the energy star requirements. MAA utilizes an 8,000 ton/hour thermal storage system to shift energy use from high demand peak times (daytime) to low peak demand times (overnight) when energy costs is lower to provide cooling for portions of the terminal building.
- All terminal bathrooms have been equipped with low flow fixtures (toilets, urinals, sinks).
- Quantified Carbon footprint
- Provided training on recycling and has performed a survey to identify areas to reduce waste
 - Inspect trash/recycling containers bimonthly. Increased awareness among tenants for the need to recycle cardboard which is the largest contributor to the recycling effort. Also investigating the possibility of recycling yard debris.

Department of Education – Workforce and Technology Center (well filled out survey):

- We did provide an energy conservation booth at our 2008 Division of Rehabilitation Services Health Fair. Our group provided CFL light bulbs to staff and handout information from the U.S. Department of Energy and the Maryland Department of the Environment. This was an all day event. Our handouts consisted of: U.S. Department of Energy, "Energy Efficiency and Renewable Energy - Energy Savers Tips on Saving Energy and Money at Home" U.S. Environmental Protection Agency, "A Do-It-Yourself Guide to Energy Star Home Sealing"
- As a result of our energy audit by Constellation Energy we have identified nine ECM's: Steam blankets, Building envelope improvements, Steam trap replacements, Energy efficient lighting and controls, Occupancy controls for fan coil units, EMS upgrades and HVAC system upgrades, Chilled/condenser water, VFD pump application, Kitchen summer steam boiler sequence improvements, Chill plant shutdown on weekends/AC upgrades
- We installed energy efficient faucets and converted water-cooled compressors to air-cooled compressors.
- Anticipates meeting 2009 and 2010 energy reduction goals

Dept of Health & Mental Hygiene – Spring Grove Hospital

- Occupancy sensors for lighting; energy management system for HVAC controls; new boilers and hot water heaters as well as new kitchen hood controls.
- Geo-thermal heat pump being installed in mansion house.
- Has Sedan that uses ultra-low sulphur diesel fuel.
- Initiated shuttle service to campus from bus stop; established on grounds shuttle service and proactive scheduling of off campus trips.

MAIF:

- MAIF made a decision to "green" our business in early 2007. We continue to educate and engage employees and promote conservation efforts using both internal and external resources. We bolster participation by hosting educational events such as Earth Day, lectures and demonstrations, and guest speakers. We use contests, inspirational posters, and initiated an employee incentive program. We added a green page to our internal newsletter and a green internal web-page is in development. We benchmarked and began monitoring our energy and water consumption, initiated Power-down, reduce waste, responsible procurement and recycling campaigns.
- Weather stripping is being replaced, air leak was sealed, Venetian blinds are being installed in reception area, we're installing a new HVAC management system, and we're continuing to replace existing bulbs with more efficient bulbs and ballasts as needed.
- PC management- auto shutdown features activated, conservation, education, and behavioral modification efforts.
- Educational postings including a green driving video and green driving quiz will be posted in the initial deployment of our internal green web page.
- Educational literature and postings- internal green web page and newsletter, 2008 Earth Day non-profit group promoted rain barrel usage, and demonstrated design, construction and subsequent benefits.
- Conducted waste audit. Continuous monitoring- waste vs. recycling
- Ongoing recycling contest and implemented a single stream recycling program (2008) for all AA county acceptable materials, we also recycle computer and office equip., toner cartridges, cell phones, batteries, cafe grease, and bulbs. We donate Styrofoam packing materials we receive with supplies to local shipping business, promote/educate using posters, videos, events such as Earth Day and green promotional items

Dept of Housing and Community Development

- Created a Green Team to create new awareness programs, replace existing light bulbs, develop training programs, conduct surveys about carpooling, and to quantify their carbon footprint.

MdTA: Francis Scott Key Bridge

- Switching to LED and Solar navigational lighting on bridge.

MdTA: Annapolis

- Planting drought resistant plants, to reduce watering

Public Safety and Corrections

- ECI COGEN – Wood biomass plant

MPA – HMI, Cox Creek, Poplar Island and Masonville

- Use Bay water for dust control
- Poplar, HMI, Cox Creek – use waste oil for heating

Agencies who did an exceptional job completing the survey:

- Department of Human Resources submitted 52 surveys
- Department of Mental Health and Hygiene submitted 21 surveys
- The Universities included many additional comments and information on projects they have completed, or are currently working on.
- The Army National Guard provided many additional comments and information regarding projects they have completed or are working on.
- Stadium Authority
- MD State Police submitted 45 surveys (to date, surveys are still being added)

APPENDIX C

June 10, 2009

FOOTPRINT REDUCTION GOALS

State Government Environmental Footprint Reduction Goals

June 10, 2009

Power Consumption – Building Energy

1. Require and track completion of all State building Phase I Energy Plans, including completion of energy audits¹.
2. Require and track setting of energy goals for all State agencies/buildings.²
 - a. Standardize the energy goals of the various pieces of legislation/orders
 - i. Exec Order 01.01.2001.02 set goals of 10% and 15% energy reduction by 2005 and 2010, respectively, from a 2000 baseline for State buildings.
 - ii. COMAR Chapter 427 set energy reduction goals, by SB267, which required reductions of 5% by 2009 and 10% from 2010 from a 2005 baseline.
 - iii. EmPOWER MD has an energy reduction goal of a 15% reduction by 2015 per capita, from a 2007 baseline. This is the recommended goal for this initiative, with 2008 as a baseline for agencies that can not document their 2007 baseline.
 - iv. GGRA of 2009 sets GHG reduction targets of 10% by 2012, 15% 2015, and a regulatory goal of 25% by 2020 from a 2006 baseline.
 - b. Standardize the setting of a baseline year – recommend 2008 for the goals that will rely on the DGS database information, as data will not consistently be available for years prior to that for all State agencies.³
 - c. Complete clean up of the DGS database of power and water bills for State agencies so that the baseline year can be set, and data can be consolidated and manipulated for the footprint reduction tracking.
3. Require all State agencies/buildings to put programs in place to turn off electronic equipment, where practical, including computers and lights during non-use time periods. Use of “smart-strips” for example.
4. Require the state to utilize the EPEAT (Electronic Product Environmental Assessment Tool) standards for computer procurement. Also “energy star” rated equipment.
5. Require and track that all State agencies/buildings install timers or motion detectors on lights to automatically turn off lights in non-use times and areas.⁴
6. Require and track that all State agencies/buildings set water heaters to between 105 and 115 degrees F.
7. Require and track cleaning of air filters and heating coils on equipment in State buildings.

¹ Please note goals in yellow are recommended to be incorporated into State Stat reporting.

² LEED certified buildings would be exempt from reduction goals, recognizing that they are already using conservation technologies.

³ It is noted that agencies that established baselines and met all previous goals should be allowed to take credit for reduction actions prior to the new baseline year, if it is set at 2008.

⁴ A threshold return on investment should be set – larger buildings with more lights can be targeted first for timer or motion detector turn off.

8. Require and track the establishment of staff/student training programs for energy conservation.
9. Set a timetable for replacement of all incandescent light fixtures with LED light fixtures. (Fluorescent bulbs or fixtures could be a mid-point step, but LEDs will avoid the mercury waste issue and be even more energy efficient.)
10. Establish a robust mechanism to keep up with the above “requiring and tracking”, StateStat.

Vehicle Fuel

1. Require and track fleet maintenance practices that improve fuel efficiency of the State fleet, including performing manufacturer recommended maintenance such as replacing air filters, and keeping tires properly inflated and aligned.
2. Implement employee driver training programs that focus on fuel-efficient driving, incorporating this into existing programs where possible.
3. Establish a mechanism for tracking mobile fuel use by State agencies and establish a timeline to make this data available for footprint reduction tracking.
4. Work with Maryland delegation to revise the definition of “alternative” fueled vehicles under the EPACT to include hybrid vehicles and electric vehicles.

Waste Generation

1. Require and track the establishment of recycling programs for all State agencies/buildings.
2. Implement staff/student training and education programs on waste reduction.
3. Implementation of HB 595 that requires collection and recycling of aluminum, plastic, paper and glass in state owned or operated buildings.
4. Develop source reduction credit program/accounting for state agencies.
5. Involve DGS and agency procurement/purchasing to include recycling and reporting in contracts for waste hauling.

Water Consumption

1. Require and track compliance with existing water conservation goals for State agencies/building. (Exec Order 01.01.2001.06 requires reductions equaling 10% by 2010 from a 2000 baseline).⁵ After 2010, set a new water reduction goal for State Government.
2. Require and track annual water use audit of each state building (also required under Exec Order listed in 1, above).^{6, 7}
3. Implement staff/student training and education programs on water conservation.
4. Implement inspection programs to check for plumbing leaks on a minimum frequency in State facilities.⁸
5. Install faucet aerators in all State agencies/buildings.⁹

⁵ It was noted that this goal was set for the State as a whole. Some agencies’ reductions may have allowed the State to meet this goal. There has not been regular reporting of this information to MDE for many years, it would need to gear back up.

⁶ A threshold building size is recommended to require an audit – many very small buildings with not much water use would have little return on the investment of performing an audit.

⁷ LEED certified buildings would be exempt.

⁸ See footnote 5, a threshold building size or water use threshold is recommended.

⁹ See footnote 6.

6. Convert to low-flow faucets and low flow or dual/flush toilets in all State agencies/buildings.¹⁰
7. Replace showerheads with low flow models in State agencies/buildings – colleges and corrections facilities are important first steps.¹¹
8. Perform vehicle and window washing on an as needed vs. a scheduled basis.
9. Reduce irrigation volumes by limiting to the coolest parts of the day or using collected rainwater.

Overall/Policy Observations and Goals

- One challenge is that many state agencies are not metered separately for their facilities. They lease from DGS, or others, or share space that is not metered separately. Many agencies also do not directly pay their own power bills, so there is not a visible benefit to taking steps to achieve water and energy conservation. Metering is expensive, so a fund source would need to be identified if this is identified as a goal.
- The training component for staff and students is also critical. We have heard from survey responses and at the University summit that training and education can make a huge difference in acceptance and cooperation with conservation efforts.
- Related to the first bullet above – it has been suggested that finding a way to ‘incentivize’ the agencies or building staffs could also increase success of the efforts. One report from a facility at the University Summit was that when staff (at a separately funded unit) were allowed to share a percentage of the cost savings of conservation, it drastically increased the success of their conservation efforts. Or an agency could share part of the savings with an add-in to their budget that allowed them to use some of the savings for their own mission, vs. just DGS seeing the savings. But there would need to be separate metering to measure the savings.
- Consider establishing a position or expanding the duties of an existing position at each agency to incorporate responsibility for tracking and reporting on these goals. That person should be reporting fairly high up in each organization so there is a direct line to the person who is responsible for their agencies’ compliance.
- Include reporting on these goals in “State Stat” to keep the visibility and responsibility for goal achievement from being lost.

¹⁰ See footnote 6.

¹¹ See footnote 6.